

CUSTOMER NO.: 24498
Serial No. 10/590,555
Office Action dated: 12/08/10
Response dated: 04/08/11

PATENT
PD040028

Amendments to the Drawings

The attached drawing Sheets 1-7 include changes to Figures 1-12. The sheets, which include Figures 1-12, replace the original drawing sheets including Figures 1-12.

In Figures 1-12, reference labels have been added.

Attachment: Replacement Sheets containing Figures 1-12

CUSTOMER NO.: 24498
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Remarks/Arguments

In the Office Action, the Examiner noted that claims 1-12 are pending in the application and that claims 1-12 stand rejected. By this response, claims 2 and 7-10 have been cancelled and claims 1, 3 and 11 have been amended to more clearly define the invention of the Applicants. All other claims are unamended by this response.

In view of the amendments presented above and the following discussion, the Applicants respectfully submit that none of these claims, now pending in the application, are rendered obvious under the provisions of 35 U.S.C. §103. Thus, the Applicants respectfully submit that all of these claims are now in allowable form.

Objections

A. Drawings

The Examiner objected to the Applicants' Figures 1-12 for not having reference labels.

In response, the Applicants have herein included Replacement Sheets including Figures 1-12 having reference labels. Having done so, the Applicants submit that the basis for the Examiner's objection to the Applicants' drawings has been removed and respectfully requests that the drawing objection be withdrawn.

Rejections

A. 35 U.S.C. § 103

The Examiner rejected the Applicants' claims 1 and 12 under 35 U.S.C. §103(a) as being unpatentable over Miyashita et al. (U.S. Patent No. 6,937,551, hereinafter "Miyashita") in view of Taki et al. (U.S. Patent No. 5,809,406). The rejection is respectfully traversed.

The Examiner further rejected the Applicants' claim 2, now incorporated into amended claim 1, under 35 U.S.C. §103(a) as being unpatentable over Miyashita in view of Taki in further view of Dieterich.

The Applicants' claim 1 has been amended herein to include the technical features of cancelled claim 2 and further includes that feature that the scaling is

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**PATENT
PD040028**

applied such that the middle coefficient has the highest value. Such amendment is supported in the specification at least on page 12, lines 2-3.

The Applicants submit that Miyashita discloses a PRML for adaptive bit recovery including an adaptive equalizer and a Viterbi decoder. As conceded by the Examiner, Miyashita does not teach an overflow control block for the adaptive equalizer for monitoring one or more of the adaptation coefficients, as taught and claimed by the Applicants. The Applicants further submit that Miyashita does not teach a scaling block for applying a scaling to one or more of the data paths of the coefficient values when the overflow control block indicates that one or more of the coefficients run out of their intended data range and at the same time applying the scaling such that the middle coefficient has the highest value as taught and claimed by the Applicants' amended claim 1.

Taki (US 5,809,406) discloses an active receiving system for a radio receiving apparatus. The receiving system comprises an equalizer. A malfunction of the receiving system is predicted by monitoring alarm prediction information before the circuit is hit (column 2, lines 48-54). Taki teaches to monitor plural tap coefficients of an equalizer and outputting an alarm signal if a tap coefficient is likely to overflow (column 8, lines 1-9). In Fig. 2, Taki discloses two receiving systems, an active receiving system 10-1 and a standby receiving system 10-2. In Taki, when an alarm signal is received, which is triggered by an overflow of the tap coefficients, a switch is made between the active receiving system 10-1 and the standby receiving system 10-2 (column 8, lines 10-18). Thus, another receiving path is used in case an alarm signal is generated. This is a completely different function than scaling the tap coefficients as taught and claimed by the Applicants' amended claim 1.

With regards to Dieterich, the Applicants submit that Dieterich discloses a ghost cancelling system and describes the problem that the magnitudes of all of the weighting coefficients of the IIR ghost cancelling filters sum up to a value greater than one. If the sum is greater than one, the respective weighting coefficients are scaled. This sum is built in adder 12 (Fig. 1), to which the input signal is applied. Thus, scaling to one or more of the data paths of the coefficients, wherein the scaling is applied such that the middle coefficient has the highest value as taught and claimed by the Applicants, is not disclosed.

CUSTOMER NO.: 24498
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PATENT
PD040028

Further, in Dieterich the scaling is applied by a scaling factor, wherein the scaling factor is applied to all coefficients (column 3, lines 8-13). Thus, all coefficients are scaled in the same way.

In contrast to Miyashita, Taki and Dieterich, alone or in any allowable combination, the Applicants' claim 1 claims a scaling block for applying a scaling to one or more of the data paths of the coefficient values, wherein the scaling is applied such that the middle coefficient has the highest value. Thus claim 1 clearly demands that scaling for different coefficients might be different in order to fulfill the condition that the middle coefficient always has the highest value. This is advantageous because this enhances stability of the system.

Thus, the Applicants submit that at least because Miyashita, Taki and Dieterich, alone or in any allowable combination, fail to teach or suggest at least, "a scaling block for applying a scaling to one or more data paths of the coefficients when the overflow control block indicates that one or more of the coefficients is out of an intended data range, wherein the scaling is applied such that a middle coefficient has the highest value", as taught and claimed by the Applicants, claim 1, as amended, is new and inventive over Miyashita in view of Taki and Dietrich and in view of any other cited prior art.

Therefore, the Applicants submit that for at least the reasons recited above, Miyashita, Taki and Dieterich, alone or in any allowable combination, absolutely fails to teach, suggest or make obvious each and every element of the Applicants' claimed invention, arranged as in at least the Applicants' claim 1. Therefore, the Applicants submit that the Applicants' claim 1 is not rendered obvious by the teachings of Miyashita, Taki and Dieterich, alone or in any allowable combination, and, as such, fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder.

Likewise, the Applicants' claim 12 is an independent claim that recites similar relevant technical features as the Applicant's independent claim 1. The Applicants respectfully submit that for at least the same reasons as recited above with reference to the Applicants' amended claim 1, independent claim 12 is also not rendered obvious by the teachings of Miyashita, Taki and Dieterich, alone or in any allowable

CUSTOMER NO.: 24498
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combination, and, as such, fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder.

The Examiner rejected the Applicants' claim 3 under 35 U.S.C. §103(a), as being unpatentable over Miyashita in view of Taki in further view of Sugiyama (U.S. Patent No. 5,245,561).

As recited above, the Applicants submit that Miyashita and Taki fail to teach or suggest the Applicants' claim 1 for at least the reasons recited above. The Applicants submit that, at least because of its dependency on claim 1, that Miyashita and Taki also fail to teach or suggest the Applicants' claim 3, which depends from claim 1. The Applicants further submit that Sugiyama fails to bridge the substantial gap between the teachings of Miyashita and Taki and the invention of the Applicants. More specifically, Sugiyama fails to teach or suggest at least, "a scaling block for applying a scaling to one or more data paths of the coefficients when the overflow control block indicates that one or more of the coefficients is out of an intended data range, wherein the scaling is applied such that a middle coefficient has the highest value", as taught and claimed by the Applicants' claim 1 and, as such, claim 3. In fact, Sugiyama was only cited for teaching an adaptive filter which compares the maximum tap number with an inactive tap number.

Therefore, the Applicants submit that for at least the reasons recited above, Miyashita, Taki and Sugiyama, alone or in any allowable combination, absolutely fails to teach, suggest or make obvious each and every element of the Applicants' claimed invention, arranged as in at least the Applicants' claim 3, which depends from claim 1. Therefore, the Applicants submit that the Applicants' claim 3 is not rendered obvious by the teachings of Miyashita, Taki and Sugiyama, alone or in any allowable combination, and, as such, fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder.

The Applicants reserve the right to establish the patentability of each of the claims individually in subsequent prosecution.

The Examiner rejected the Applicants' claims 4-6 under 35 U.S.C. §103(a) as being unpatentable over Miyashita in view of Taki in further view of Okumura et al. (U.S. 2005/0193318, hereinafter, "Okumura").

CUSTOMER NO.: 24498
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As recited above, the Applicants submit that Miyashita and Taki fail to teach or suggest the Applicants' claim 1 for at least the reasons recited above. The Applicants submit that, at least because of their dependency on claim 1, that Miyashita and Taki also fail to teach or suggest the Applicants' claims 4-6, which depend from claim 1. The Applicants further submit that Okumura fails to bridge the substantial gap between the teachings of Miyashita and Taki and the invention of the Applicants. More specifically, Okumura fails to teach or suggest at least, "a scaling block for applying a scaling to one or more data paths of the coefficients when the overflow control block indicates that one or more of the coefficients is out of an intended data range, wherein the scaling is applied such that a middle coefficient has the highest value", as taught and claimed by the Applicants' claim 1 and, as such, claims 4-6. In fact, Okumura was only cited for teaching a tap coefficient update circuit which updates/adapts taps by scaling the tap coefficients by a gradient value and an adaptation constant.

Therefore, the Applicants submit that for at least the reasons recited above, Miyashita, Taki, and Okumura, alone or in any allowable combination, absolutely fail to teach, suggest or make obvious each and every element of the Applicants' claimed invention, arranged as in at least the Applicants' claims 4-6, which depend from claim 1. Therefore, the Applicants submit that the Applicants' claim 4-6 are not rendered obvious by the teachings of Miyashita, Taki, and Okumura, alone or in any allowable combination, and, as such, fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder.

Even further, claim 11 depends from claim 1, and, as such, the Applicants submit that, for at least the reasons recited above with respect to claim 1, that claim 11 is also not rendered obvious by any of the prior art cited by the Examiner, alone or in any allowable combination.

The Applicants reserve the right to establish the patentability of each of the claims individually in subsequent prosecution.

CUSTOMER NO.: 24498
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Conclusion

Thus the Applicants submit that none of the claims, presently in the application, are rendered obvious under the provisions of 35 U.S.C. §103. Consequently, the Applicants believe that all these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion, it is respectfully requested that the Examiner telephone the undersigned.

Please charge the \$130 fee for the Petition for a One-Month Extension, and any other fees that may be due, and/or credit any overpayments, to Deposit Account No. 07-0832.

Respectfully submitted,
AXEL KOCHALE ET AL.

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Attachments

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April 8, 2011